



Complete Summary

GUIDELINE TITLE

Catheter-associated urinary tract infections. In: Guidelines on urological infections.

BIBLIOGRAPHIC SOURCE(S)

Catheter-associated UTIs. In: Grabe M, Bishop MC, Bjerklund-Johansen TE, Botto H, Çek M, Lobel B, Naber KG, Palou J, Tenke P, Wagenlehner F. Guidelines on urological infections. Arnhem, The Netherlands: European Association of Urology (EAU); 2009 Mar. p. 65-7. [1 reference]

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Catheter-associated UTIs. In: Grabe M, Bishop MC, Bjerklund-Johansen TE, Botto H, Çek M, Lobel B, Naber KG, Palou J, Tenke P. Guidelines on the management of urinary and male genital tract infections. Arnhem, The Netherlands: European Association of Urology (EAU); 2008 Mar. p. 70-1. [1 reference]

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SCOPE

DISEASE/CONDITION(S)

Catheter-associated urinary tract infections

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Screening
Treatment

CLINICAL SPECIALTY

Family Practice
Geriatrics
Infectious Diseases
Internal Medicine
Surgery
Urology

INTENDED USERS

Advanced Practice Nurses
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To assist urologists and physicians from other medical specialties in their daily practice
- To present guidelines on the management and prevention of catheter-associated urinary tract infections

TARGET POPULATION

Patients with urinary catheters

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Urine culture (not recommended routinely in asymptomatic patients)
2. Blood cultures in septic patients
3. Examination for other causes of fever

Management/Treatment

1. Antibiotic treatment (not usually recommended in asymptomatic patients)
2. Sequence of antibiotics
3. Antifungal therapy (not recommended in asymptomatic patients)
4. Catheter removal
5. Post-removal management
6. Use of alternative drainage systems

Prevention

1. Provision of a written catheter care protocol
2. Provider adherence to hygiene including use of disposable gloves
3. Type of catheter system
4. Duration of catheterisation/timing of catheter removal
5. Topical antiseptics/antibiotics (not recommended)
6. Prophylactic antibiotics/antiseptics (not recommended)
7. Use of antibiotic-impregnated catheter (not recommended routinely)
8. Chronic antibiotic suppressive therapy (not recommended generally)

Screening

Bladder cancer screening for long-term catheterised patients

MAJOR OUTCOMES CONSIDERED

- Incidence of urinary tract infection
- Time to infection
- Rate of spontaneous clearance of infection

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

General Search Strategy

A structured literature search is performed for all guidelines but this search is limited to randomized controlled trials and meta-analyses, covering at least the past three years, or up until the date of the latest text update if this exceeds the three-year period. Other excellent sources to include are other high-level evidence, Cochrane review and available high-quality guidelines produced by other expert groups or organizations. If there are no high-level data available, the only option is to include lower-level data. The choice of literature is guided by the expertise and knowledge of the Guidelines Working Group.

Specific Strategy for This Guideline

Medline was systematically searched for meta-analyses of randomized controlled trials giving preference to the Cochrane Central Register of Controlled Trials. Other relevant publications were also considered.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence

Ia Evidence obtained from meta-analysis of randomized trials

Ib Evidence obtained from at least one randomized trial

IIa Evidence obtained from at least one well-designed controlled study without randomization

IIb Evidence obtained from at least one other type of well-designed quasi-experimental study

III Evidence obtained from well-designed non-experimental studies, such as comparative studies, correlation studies and case reports

IV Evidence obtained from expert committee reports or opinions or clinical experience of respected authorities

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus (Consensus Development Conference)

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

General Methods Used to Formulate the Recommendations

- The first step in the European Association of Urology (EAU) guidelines procedure is to define the main topic.
- The second step is to establish a working group. The working groups comprise about 4-8 members, from several countries. Most of the working group members are academic urologists with a special interest in the topic. Specialists from other medical fields (radiotherapy, oncology, gynaecology, anaesthesiology etc.) are included as full members of the working groups as needed. In general, general practitioners or patient representatives are not part of the working groups. Each member is appointed for a four-year period, renewable once. A chairman leads each group.

- The third step is to collect and evaluate the underlying evidence from the published literature.
- The fourth step is to structure and present the information. All main recommendations are summarized in boxes and the strength of the recommendation is clearly marked in three grades (A-C), depending on the evidence source upon which the recommendation is based. Every possible effort is made to make the linkage between the level of evidence and grade of recommendation as transparent as possible.

Specific Methods Used for This Guideline

The members of the Urinary Tract Infection (UTI) Working Group of the European Association of Urologists (EAU) Health Care Office established the first version of these guidelines in several consensus conferences. The text presents the findings of a comprehensive update produced as a collaborative effort by the European Society for Infection in Urology (ESIU) (the ESIU is a full EAU section office), the Urological Association of Asia, the Asian Association of UTI/Sexually Transmitted Disease (STD), the Western Pacific Society for Chemotherapy, the Federation of European Societies for Chemotherapy and Infection, and the International Society of Chemotherapy for Infection and Cancer.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

The studies' recommendations were rated according to a modification of the US Department of Health and Human Services (1992).^Â

Grades of Recommendation^Â

- A. Based on clinical studies of good quality and consistency addressing the specific recommendations and including at least one randomized trial
- B. Based on well-conducted clinical studies, but without randomized clinical studies
- C. Made despite the absence of directly applicable clinical studies of good quality

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The formal agreement to each updated chapter was achieved by the European Association of Urology (EAU) working group in a series of meetings.

There is no formal external review prior to publication.

The Appraisal of Guidelines for Research and Evaluation (AGREE) instrument was used to analyse and assess a range of specific attributes contributing to the validity of a specific clinical guideline.

The AGREE instrument, to be used by two to four appraisers, was developed by the AGREE collaboration (www.agreecollaboration.org) using referenced sources for the evaluation of specific guidelines. (See the "Availability of Companion Documents" field for further methodology information).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Grades of recommendation (**A-C**) are defined at the end of the "Major Recommendations" field.

General Aspects

- Written catheter care protocols are necessary. (**B**)
- Health care workers should observe protocols on hand hygiene and the need to use disposable gloves between catheterised patients. (**A**)

Catheter Insertion and Choice of Catheter

- An indwelling catheter should be introduced under antiseptic conditions. (**B**)
- Urethral trauma should be minimised by the use of adequate lubricant and the smallest possible catheter calibre. (**B**)
- Antibiotic-impregnated catheters may decrease the frequency of asymptomatic bacteriuria within 1 week. There is, however, no evidence they decrease symptomatic infection. Therefore, they cannot be recommended routinely. (**B**)
- Silver alloy catheters significantly reduce the incidence of asymptomatic bacteriuria, but only for less than 1 week. There was some evidence of reduced risk for symptomatic urinary tract infection (UTI). Therefore, they may be useful in some settings. (**B**)

Prevention

- The catheter system should remain closed. (**A**)
- The duration of catheterisation should be minimal. (**A**)
- Topical antiseptics or antibiotics applied to the catheter, urethra or meatus are not recommended. (**A**)
- Benefits from prophylactic antibiotics and antiseptic substances have never been established; therefore, they are not recommended. (**A**)
- Removal of the indwelling catheter after non-urological operation before midnight may be beneficial. (**B**)
- Long-term indwelling catheters should be changed in intervals adapted to the individual patient, but must be changed before blockage is likely to occur; however, there is no evidence for the exact intervals of changing catheters. (**B**)
- Chronic antibiotic suppressive therapy is generally not recommended. (**A**)

Diagnostics

- Routine urine culture in asymptomatic catheterised patients is not recommended. **(B)**
- Urine, and in septic patients also blood for culture must be taken before any antimicrobial therapy is started. **(C)**
- Febrile episodes are only found in less than 10% of catheterised patients living in a long-term facility. It is therefore extremely important to rule out other sources of fever. **(A)**

Treatment

- Whilst the catheter is in place, systemic antimicrobial treatment of asymptomatic catheter-associated bacteriuria is not recommended, except in certain circumstances: especially prior to traumatic urinary tract interventions. **(A)**
- In case of asymptomatic candiduria, neither systemic nor local antifungal therapy is indicated, but removal of the catheter or stent should be considered. **(A/C)**
- Antimicrobial treatment is recommended only for symptomatic infection. **(B)**
- In case of symptomatic catheter associated UTI it may be reasonable to replace or remove the catheter before starting antimicrobial therapy if the indwelling catheter has been in place for more than 7 days. **(B)**
- For empiric therapy broad-spectrum antibiotics should be given based on local susceptibility patterns. **(C)**
- After culture results are available antibiotic therapy has to be adjusted according to sensitivities of the pathogens. **(B)**
- In case of candiduria associated with urinary symptoms or if candiduria is the sign of a systemic infection, systemic therapy with antifungals are indicated. **(B)**
- Elderly female patients may need treatment if bacteriuria does not resolve spontaneously after catheter removal. **(C)**

Alternative Drainage Systems

- There is limited evidence that post-operative intermittent catheterisation reduces the risk of bacteriuria compared with indwelling catheter. No recommendation can be made. **(C)**
- In appropriate patients suprapubic, condom drainage system or intermittent catheter are preferable to indwelling urethral catheter. **(B)**
- There is little evidence suggesting that antibiotic prophylaxis decreases bacteriuria in patients using intermittent catheterisation; therefore, it is not recommended. **(B)**

Long-Term Follow Up

- Patients with urethral catheters in place for 10 years or more should be screened for bladder cancer. **(C)**

Definitions:

Grades of Recommendation

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- B. Based on well-conducted clinical studies, but without randomized clinical studies
- C. Made despite the absence of directly applicable clinical studies of good quality

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is graded for each recommendation (see the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management and prevention of catheter-associated urinary tract infections (UTIs)

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

The purpose of these texts is not to be proscriptive in the way a clinician should treat a patient but rather to provide access to the best contemporaneous consensus view on the most appropriate management currently available. European Association for Urology (EAU) guidelines are not meant to be law texts but are produced with the ultimate aim to help urologists with their day-to-day practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The European Association of Urology (EAU) Guidelines long version (containing all 19 guidelines) is reprinted annually in one book. Each text is dated. This means that if the latest edition of the book is read, one will know that this is the most updated version available. The same text is also made available on a CD (with hyperlinks to PubMed for most references) and posted on the EAU websites Uroweb and Urosource (www.uroweb.org/professional-resources/guidelines/ & <http://www.urosource.com/diseases/>).

Condensed pocket versions, containing mainly flow-charts and summaries, are also printed annually. All these publications are distributed free of charge to all (more than 10,000) members of the Association. Abridged versions of the guidelines are published in European Urology as original papers. Furthermore, many important websites list links to the relevant EAU guidelines sections on the association websites and all, or individual, guidelines have been translated to some 15 languages.

IMPLEMENTATION TOOLS

Foreign Language Translations
Pocket Guide/Reference Cards
Resources

For information about [availability](#), see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness
Staying Healthy

IOM DOMAIN

Effectiveness
Safety

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Catheter-associated UTIs. In: Grabe M, Bishop MC, Bjerkklund-Johansen TE, Botto H, Çek M, Lobel B, Naber KG, Palou J, Tenke P, Wagenlehner F. Guidelines on

urological infections. Arnhem, The Netherlands: European Association of Urology (EAU); 2009 Mar. p. 65-7. [1 reference]

ADAPTATION

This guideline is adapted from the following source:

- Tenke P, Kovacs B, Bjerklund Johansen TE, Matsumoto T, Tambyah PA, Naber KG. European and Asian guidelines on management and prevention of catheter-associated urinary tract infections. *Int J Antimicrob Agents* 2008;31S: S68-S78.

DATE RELEASED

2008 Mar (revised 2009 Mar)

GUIDELINE DEVELOPER(S)

European Association of Urology - Medical Specialty Society

SOURCE(S) OF FUNDING

European Association of Urology

GUIDELINE COMMITTEE

Urinary Tract Infection Guidelines Working Group

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Group Members: M. Grabe (*Chairman*); M.C. Bishop; T.E. Bjerklund-Johansen; H. Botto, M. Çek; B. Lobel; K.G. Naber; J. Palou; P. Tenke; F. Wagenlehner

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All members of the Urological Infections guidelines writing panel have provided disclosure statements of all relationships which they have and which may be perceived as a potential source of conflict of interest. This information is kept on file in the European Association of Urology (EAU) Central Office database. This guidelines document was developed with the financial support of the European Association of Urology. No external sources of funding and support have been involved. The EAU is a non-profit organisation and funding is limited to administrative assistance and travel and meeting expenses. No honoraria or other reimbursements have been provided.

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the [European Association of Urology Web site](#).

Print copies: Available from the European Association of Urology, PO Box 30016, NL-6803, AA ARNHEM, The Netherlands.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Guidelines on urological infections. Pocket guideline. Arnhem, The Netherlands: European Association of Urology (EAU); 2009 Mar. 17 p. Electronic copies: Available in [English](#) and [Russian](#) from the EAU Web site. Also available as an e-book form the [EAU Web site](#).
- EAU guidelines office template. Arnhem. The Netherlands: European Association of Urology (EAU); 2007. 4 p.
- The European Association of Urology (EAU) guidelines methodology: a critical evaluation. Arnhem, The Netherlands: European Association of Urology (EAU); 18 p.

Print copies: Available from the European Association of Urology, PO Box 30016, NL-6803, AA ARNHEM, The Netherlands.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI Institute on September 8, 2008. The information was verified by the guideline developer on December 8, 2008. This summary was updated by ECRI Institute on January 8, 2010.

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